Claims

1. A cable handling system comprising:

a cable reel drive;

a downstream tension roller drive comprising an idler;

an idler sensor for determining at least one of a position along a length of cable and a cable speed; and

a system controller in communication with the sensor for controlling the cable reel drive and the tension roller drive for dispensing and retrieving cable downstream of the tension roller drive at substantially zero tension.

2. The cable handling system of claim 1, wherein the cable reel drive comprises a motor and a sensor for determining rotation of the cable reel drive.

3. The cable handling system of claim 2, wherein the tension roller drive further comprises a motor and a sensor for determining rotation of the tension roller drive.

4. The cable handling system of claim 1, further comprising a level wind mechanism located between the cable reel drive and the tension roller drive.

5. The cable handling system of claim 1, wherein the system controller comprises a cable reel drive velocity controller.

6. The cable handling system of claim 1, wherein the system controller comprises a tension roller drive torque controller.

7. The cable handling system of claim 3, wherein the system controller comprises a cable state estimator for receiving signals from the idler sensor, the cable reel drive sensor, and the tension roller drive sensor.

8. The cable handling system of claim 1, wherein the system controller comprises a feed forward compensator for providing a torque command to the cable reel drive velocity controller.

9. The cable handling system of claim 1, wherein the system controller comprises a cable gain scheduler for providing a compensating command to at least one of the cable reel drive and the tension roller drive.

10. The cable handling system of claim 3, wherein at least one of a cable reel drive and a tension roller drive further comprises at least one dynamic thermal limiter for monitoring at least one of a motor current and a motor case temperature.

11. A mobile platform comprising:

a chassis;

a chassis drive system;

a drive system sensor for determining platform velocity;

a cable handling system secured to the chassis for dispensing and retrieving cable from the mobile platform at substantially zero tension; and

a system controller for controlling the cable handling system, the controller determining an effective cable velocity based at least in part on platform velocity and platform configuration.

12. The mobile platform of claim 11, wherein the system controller utilizes a rigid body transform function.

13. The mobile platform of claim 11, wherein the system controller manages a plurality of cable management modes.

14. The mobile platform of claim 13, wherein the cable management modes comprise a track mode.

15. The mobile platform of claim 13, wherein the cable management modes comprise a track reverse mode.

16. The mobile platform of claim 13, wherein the cable management modes comprise a track in mode.

17. The mobile platform of claim 13, wherein the cable management modes comprise a track out mode.

18. The mobile platform of claim 13, wherein the cable management modes comprise an error mode.

19. The mobile platform of claim 13, wherein the cable management modes comprise an idle mode.

20. The mobile platform of claim 11 further comprising:

a cable reel mounted to the cable handling system; and

a cable comprising a first end portion, an intermediate portion, and a second end portion, wherein the first end portion is secured to the cable reel, the intermediate portion is wound about the cable reel and guided through the cable handling system, and the second end portion is downstream of the mobile platform.

21. The mobile platform of claim 20, wherein the second end portion of the cable is secured to a remote base.

22. The mobile platform of claim 21, wherein the cable is at least one of a fiber optic cable and a power cable.

23. A method of automatically dispensing and retrieving a cable comprising:

providing a cable handling system secured to a mobile platform;

determining at least one of a position along a length of cable and a cable speed; and

controlling the cable handling system and the mobile platform such that the cable downstream of the platform is dispensed and retrieved at substantially zero tension.

24. A control system for a cable handling system comprising:

a cable reel drive controller;

a tension roller drive controller;

an idler sensor for determining at least one of a position along a length of cable and a cable velocity; and

a system controller for providing commands to the cable reel drive controller and commands to the tension roller drive controller, the commands based at least in part on a signal from the idler sensor, whereby a cable is dispensed and retrieved from the cable handling system at substantially zero tension.

25. A control system for cable management of a mobile platform comprising:

a platform drive system including a sensor for determining platform velocity; and

a system controller for dispensing and retrieving a cable from the mobile platform at substantially zero tension, the system controller determining an effective cable velocity based at least in part on platform velocity and platform configuration.